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Autumn Programme, 1952.

The new session will start with an excursion and a discussion meeting probably at Brighton in the first half of September. There will be a lecture by the Chairman at Caxton Hall, on the 26th September.

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Negative or Contra Terrene Matter

by EGERTON SYKES

The existence of negative or contra terrene mass no longer appears to be the romantic absurdity of even twenty years ago, as the necessity for it has been postulated by workers in many branches of research.

While it is by no means certain whether all these suppositions will mesh happily into each other, it seems reasonably certain that at least one of them will be brought into the realm of practical life in the immediate future. For the moment it does not appear that negative mass will of necessity have the properties attributed to it in fiction, such as that of neutralising gravity.

Negativity is a complementary state to positivity and as such, its appearance should cause no more surprise than the use of the roots of minus quantities in mathematics. In our world of today the unusual is becoming the usual, and this should enable us to appreciate the words of Carlyle: "The man who cannot wonder is but a pair of spectacles, behind which there is no eye" for without the ability to wonder we should still be the dull pedants of a century ago.

As much of the investigation into negative mass is tied up with the study of gravitation, it will be necessary to go into this aspect in some detail. Ever since the time of Newton scientists have sought to solve this mystery and it may now be said that the final veils are being pierced and we are approaching the goal.

It is now commonly accepted that gravitation is the cohesive force which holds the universe together, from the vast galaxies down to the atoms and their planetary systems and electrons, and that without it everything would break up into its component parts adverting to the *tohu bohu* or primeval chaos.

Schuster in 1891 appears to have been the first to suggest that forces in motion had magnetic qualities, but it was not for fifty years that Blackett¹ took the further step of suggesting that the angular momentum and the magnetic field of bodies are in proportion and that the constant of this relationship

"P" may be found by dividing the square root of the gravitational constant "C" by the velocity of light "c" giving us the formula: $P = \frac{B G^{\frac{1}{2}} U}{c}$. "B" has a value of about unity and

can be neglected.

This relationship is tied up with the Lande Factor of atomic physics, and the extension of the gravitational theory into the atomic world, which was taken by Glazewski in 1950², gives as a corollary the assumption that mass at absolute rest would cease to be mass owing to the absence of cohesion. Thornton³ considers that there is no such state as absolute rest, but it is just possible that such a condition might exist for an instant if the gravitational spin which holds matter together were to be suddenly reversed, in which case matter would be recreated in the same pattern as before but with negative valence.

Before proceeding further it will be necessary to examine more closely the part played by gravitation in maintaining the ratio of distances between the planets. The first to draw attention to the rhythm of planetary distances was Kepler in 1618 who noted the relationship between the distances of the planets from the Sun and the harmonic scale, a later German writer⁴ having gone so far as to compare them with notes of music. This assumption puts the cart before the horse as the harmonic scale is an aspect of the fundamental law of proportion and relationship laid down by Nature, and the fact that our musical notation corresponds to it, is what should have been anticipated.

When in 1772 Daniel Titius laid down the scale of distances which later became known as Bode's Law⁵ it was felt that the mystery of the planetary locations had been solved. The equation may be expressed as follows: $D = \frac{4 \times (2n \times 3)}{10}$, 'n'

being a variable taking on the values shown in the table on page 33. However this series only worked as far as Uranus, Neptune when it was discovered did not fit into place No. 7, which was only filled by the discovery of Pluto, while the hypothetical outer planets at distances of 77 and 154 astronomical units have yet to be found.

Subsequent investigation allowed for the division of the

planets into two groups, those having a density of over three times that of water and those having a density of less than three times that figure. The first group comprises Mercury, Venus, Earth, Luna, Mars, Pluto, Triton, (an asteroid), two moons of Saturn and three of Uranus. The second group includes Jupiter, Saturn, Uranus and Neptune, the moons of Mars, five moons of Saturn and four moons of Uranus. From this it would seem that Pluto is out of place, and that it might have been anything from a moon of Uranus to an intruder in the solar system, which latter assumption accounts for the displacement of Neptune in Bode's table.

Bode's Law is only one of a whole series of formulae devised to account for the distances between the planets and the Sun, and it is beginning to become obvious that the actual distances rather than the proportions are related to a complex link up between the masses of the Sun and of the planets and moons. These relationships are not fixed but are in a continual state of flux, owing to accretions of mass due to the landings of meteors and other minor objects, and the stresses set up in the spatial area i.e. to the limits of the gravitational power of the Sun by the extremely complex pull of forces of nine or more planets, twenty moons, thousands of asteroids, a batch of comets, and other celestial migrants.

From the investigations of such recent authorities as Fechner⁶ it would seem that we are coming back to the harmonics of Kepler, in that nature demands a constant adjustment of harmonic balances of forces as the price of stability and continued existence. The process of change is far too slow for humanity to do more than postulate its existence. The Theory of Hoerbiger^{6, 7, 8} involving the continuous inward progression of planets and moons towards their parent bodies by almost imperceptible spirals resembling the tracks of gramophone records does not seem to clash in any way with the views already mentioned. Whether the tendency for the speed of rotation of planets around the sun to be reduced, thereby requiring an automatic shortening of the orbit in order to keep the period of rotation constant, is due to diffused gases in cosmic space or to increases in bulk as mentioned above, is of little import, the principle is not affected. A precise answer can only be given when man has conquered

space and landed on Mars or Venus or at least on the Moon.

At this point it may be said that the gravitational field of a body in motion is proportionate to its bulk, its density, the inclination of its axis, its speed of axial rotation, its speed around the central body, the bulk, the density and the speed of axial rotation of the central body, its relationship with other bodies in the same system, etc. This would mean that the gravitational pull of the earth would be markedly changed if by any chance the planet were to be detached from its present association with our Solar System. From this it may be concluded that matter has mass only as long as it is in motion and that there is no such thing as mass at rest.

Consideration of these points allows for several interesting possibilities involving the use of instruments of the nature of cyclotrons. The first is that atomic fission might be effected by a sudden stoppage of flow, which would create a temporary period of rest and break down the substance under test.

The second is that if after the sudden stoppage the flow could be reversed, after the one instant during which matter would have returned to primeval chaos, it would be recreated in the opposing direction, giving a form of negative mass.

Another possibility is that the cyclotron itself could be mounted on gimbals and rotated to an angle of 180 degrees during the operation. This would give the reversal of flow needed, but it seems possible that at 90 degrees the cyclotron would collapse under the strain. Nevertheless the experiment would be an interesting one.

Our whole conceptions on negativity are vitiated by the fact that although we live in a three dimensional world, our reproduction of it is usually two dimensional. For example, in the graphic representation of mathematical problems, most of us have not even got so far as visualising that the four sections of a graph should be named as below:

minus plus	plus plus
minus minus	plus minus

while names for the four sections which are at right angles to the

paper have, as far as is known, never been considered by anybody. When the day comes that mathematical formulae are represented graphically in transparent perspex globes giving a full 360 degree coverage in every direction the question of negativity and positivity will fall into its proper and simple place in the general scheme of things.

The Appendix dealing with the gravitational theory in Einsteins Generalised Theory⁹, would not appear to clash with these assumptions. Thornton (op. cit.) observes, when speaking of the Unified Field: "This will signify a negative energy function for any medium."

Note. This is the first of a series of articles on the subject of negative mass. The second will appear in September and will, inter alia, deal with the problem of green fire balls observed in the U.S.A.

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Atlantis and the Earth Shaker

by ROBERT C. BRADLEY

The possibility that Neptune may have occasioned the sinking of Atlantis by moving out of its orbit and disturbing the celestial balance seems to be one of those things which has escaped the serious attention of all commentators. Somehow we have taken it for granted that Neptune has always occupied the orbit in which it now moves and yet, among all the planets of the solar system, Neptune is the one planet that upsets all our attempts at uncovering the physical laws by which the location of orbits is governed. In the interest of brevity I shall omit the preamble and present a few of the pertinent facts as I see them.

Barycentric Parallax is a term given to a slight oscillatory motion of the earth. The centre of gravity of the earth-moon system revolves about the sun in an orbit that is usually referred to as the orbit of the earth. Both the earth and the moon are revolving about this centre of gravity of the system as it in turn revolves about the sun. At the time of conjunction of the moon with the sun the moon is inside of the orbit of the system about the sun and the centre of the earth is outside. At opposition this condition is reversed and the centre of the earth is on the inside. Accurate measurements of barycentric parallax determine the position of the centre of mass of the earth-moon system as 2,880 miles from the centre of the earth. This is not a fixed point. It moves about within the body of the earth in step with the motion of the moon and in an approximately circular orbit of its own. The diameter of the moon, 2,160 miles, plus the diameter of this circle, 5,760 miles, is equal to the mean diameter of the earth, 7,920 miles.

The earth is an oblate spheroid with the minor axis the axis of rotation. The major axis can be any two diametrically opposed points on the equator joined together by a line that passes directly through the centre of the earth. Every 14 days, approximately, the centre of gravity of the earth-moon system cuts through the plane of the earth's equator, alternating from side to side as it revolves about the centre of the earth. At such times the declination of the moon is of course zero, and

in addition to all other effects this is the point where the earth and the moon try to bring each other into the same plane of rotation. The volume of the earth is very nearly 14 times as great as the volume of the moon and turns on its axis some 28 times faster. What the moon loses in mass it regains in persistence. The earth can just barely absorb the torque of the moon at these 14-day intervals by applying to itself the torque it would normally have exerted on the body of the moon. The same principle, inversely applied to the moon, leaves the moon without power at this time and we behold the shining example of two bodies so posited that they pass through this critical phase without friction.

So far we have given no consideration to the effect of the sun in one focus of the earth-moon orbit. In order to examine the conditions of balance we must posit the earth in its orbit so that the sun will lie at that point where its influence is greatest. This means an eclipse of the sun at the autumnal equinox, September 21st, when the earth is moving towards perihelion. In order to increase the critical nature of the solar and lunar forces the moon should be moving towards apogee in its orbit about the earth. The orbital velocity of the earth is increasing, that of the moon decreasing. The sun is at the autumnal equinox where its mean distance is approximately 92,900,000 miles. The diameter of the sun is 400 times the diameter of the moon. Dividing 92,900,000 by 400, we obtain 232,500 miles as the approximate distance to the moon, where, at the time of the eclipse, the moon will be separating from both the earth and the sun just as the sun is turning the earth towards perihelion. If this condition doesn't disturb the earth-moon orbital system we can pronounce it a stable system. Earth would be passing through a lull period, its atmosphere warm, moist, and unusually calm.

"All that summer," reads a passage in the *Oera Linda Boek*¹, "the sun had been hid behind clouds, as though it would not look on the earth. There was a perpetual calm and the deep mist hung like a wet sail over the houses and marshes. The air was heavy and oppressive, and men were neither cheerful nor joyful. In the midst of the stillness the earth began to tremble as if she were dying. The mountains vomited fire and flames. Some sank into the bosom of the earth, and in other

places mountains rose up out of the plain. Aldland, called by the seafaring people Atlan, disappeared, and the wild waters rose so high over hill and valley that everything was buried, and others who had escaped the fire were drowned in the water. Whole forests were burnt, one after the other, and when the wind blew from that quarter our land was covered with ashes. Rivers changed their course and at their mouths new islands were formed of sand and drift. During three years this continued, but at length it ceased, and the forests became visible."

"The spoke of the great wheel of the sun stood at the top when Atlan sunk," says the same record. The top of the wheel is the autumnal equinox, the beginning of the sign of Libra; but the spoke of the wheel means the vernal equinox, the beginning of Aries. This would ordinarily imply the passing of some 14,640 years, and the date would be that of about 12,690 B.C., a bit too far back if we are to accept other documents fixing the event at about 9,600 B.C., nearly 3,100 years later. There is but one way in which the Oera Linda Boek and Plutarch's "Life of Solon" can be made to agree with each other. The Frisian Oera Linda Boek refers to the solar position at the time Earth was temporarily torn from its orbit. Plutarch is counting backwards from modern times. If this interpretation is correct then the autumnal equinox must have jumped from Aries 0 to Aquarius 17 during the time it took Earth to regain equilibrium. This is also equivalent to saying that the vernal equinox jumped from Libra 0 to Leo 17 during that same period, and this gives us something to work on as we can now estimate the forces required to produce such a change.

Even a grand conjunction of all the planets along this one line of nodes is not, in itself, sufficient to upset the stability of the earth-moon system enough to create all the havoc charged to this period of time. There is, however, a rather suggestive element in the table of planetary relationships published by Bode in 1772 and known as *Bode's Law* in spite of the fact that there is certain evidence that it was known and used by Titus a number of years previous to the time of its announcement. First, let us rearrange Bode's planetary table to fit the present facts:

<i>Planet</i>	<i>Bode's Distance</i>	<i>Mean Distance</i>	<i>Density</i>
Mercury	.4	.39	6.3
Venus	.7	.72	5.0
Earth	1.0	1.00	5.5
Mars	1.6	1.52	3.8
Asteroids	2.8		2.2
Jupiter	5.2	5.2	1.4
Saturn	10.0	9.53	0.7
Uranus	19.6	19.19	1.3
Neptune	—	30.07	2.2
Pluto	38.8	39.50	5.0
Y	77.2	—	—
Z	• 154.0	—	—

There is a much simpler way of arriving at these same proportions, based on the orbit of Mercury, but Bode's Law is known quite generally and needs no explanation at this time. Discount the asteroids as flotsam and jetsam from the solar system. We now have a vacancy where there should be a planet and a planet where there should be a vacancy. Move Neptune back across the orbits of Uranus, Saturn and Jupiter, and Bode's Law once again finds itself vindicated. If Neptune, moving in an orbit between Mars and Jupiter, failed to receive the proper corrective impulse upon passing through its node towards aphelion wouldn't Neptune be flung out and away from the sun in a lengthening curve to be halted and modified by a Pluto moving in on an orbit towards perihelion? The objection that Neptune is too large a planet to move between Mars and Jupiter disappears if we consider the fact that Neptune would be moving towards a field of low gravity, its mass expanding with distance. The mass of Pluto would be impacted by the approaching Neptune and the eccentricity of its orbit emphasized and explained by the crowding influence of an added planet. The two planets, Neptune and Pluto, are now, in effect, sharing a common orbit and may, in time, find Pluto revolving about Neptune as a satellite.

The appearance of a haphazardly arranged solar system disappears if we examine the probable changes wrought by a Neptune moving out of an orbit between Mars and Jupiter and into an orbit between Uranus and Pluto. Mercury and Mars were compacted and moved in closer to the sun. Venus

was expanded and moved out towards Earth. Saturn and Uranus suffered a compaction and moved in towards the orbit of Jupiter. Pluto was compacted and at the same time driven farther out, so that that planet now moves closer to the sun than Neptune during part of its orbit and farther from the sun through the balance of its orbit. Jupiter was undoubtedly caused to expand considerably in order to hold its orbital distance, this being a quite logical reason for his rapid rotation at the present time.

However, the transition of Neptune from the one orbit to the other was more probably the cause behind the submergence of Lemuria, to which the sinking of Atlantis was but a reverberation when the absence of Neptune from its proper orbit evidenced the necessity for making further adjustments in the orbits of four planets filling the orbits of five. All of the waste material from the solar system was thrown into Neptune's old orbit to compensate the loss of mass, thus forming the asteroids which must move so as to create the same effect as a single body in an orbit especially designed for the "Earth-shaker" of Mythology.

The foregoing is but a small part of the evidence against Neptune as the destroyer of life by earthquake and flood to the accompaniment of fire and falling stars. Although much work remains to be done in re-constructing the conditions which obtained prior to the loss of Neptune from the orbit between Mars and Jupiter, it appears more or less obvious that few if any of the planets possessed satellites before that time.

But this is another story, and this was to have been a short one.

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A new critical edition of the Oera Linda in Dutch has just been completed by J. F. Overwyn. A summary of the more important findings will appear in a forthcoming issue of ATLANTIS.

If the Moon Wins

by Commander E. H. NUTTER, R.N.

In my previous article I discussed the possibility of destroying or diverting the Moon; but this may prove impracticable, or, which is more likely, the necessary action may be left until it is too late and the Moon will move inevitably onwards to its destructive end.

Can this catastrophe be guarded against so that a nucleus of survivors with the means for rebuilding civilization may be saved? Attempts were made to answer this question before the last two cataclysms by the construction of "Survival Establishments" such as Tiahuanaco and of numerous towers; but these attempts failed because their designers did not realise that no single site or area can be suitable during all the phases of the Moon's disintegration and for the period following its distribution upon the Earth.

In this article I shall consider the physical effects of the Moon on the Earth insofar as they affect the siting and possible design of future "SURVIVAL ESTABLISHMENTS" and other defensive measures. In a later article I hope to go into rather more detail regarding the sites and construction of these Establishments.

As the effects of the Moon on the Earth differ so widely during the various phases of the Approach, Disintegration and Aftermath Periods, I shall consider each main phase separately, assuming that the relevant details in Mr. Bellamy's "*Life History of our Earth*" are generally correct.

APPROACH PERIOD.

(a) *Pre-Tide Hill.*

The only major effects during this phase will be the increasing tide ranges and the gradual withdrawal of water and atmosphere towards the tropics, which will cause an extension of the polar ice caps and reduce living space on the Earth.

During this phase population, manufacturing plant and raw material should be transferred as far as possible to sub-tropical regions and the preparation of sites for Survival Establishments begun.

(b) *Tide Hill I.*

Owing to the movement of the Tide Hills round the Earth no continuous construction of Survival Establishments will be possible, but much valuable information regarding the best positions for sites may be obtained and it may be possible to carry out the major part of the necessary excavations, especially those in the tropics.

(c) *Stationary.*

Previous calculation of the Moon's Anchorage Position is of primary importance, as many of the phenomena in its vicinity will be reproduced during the Disintegration Period and much practical experience may be gained thereby regarding the siting and construction of Survival Establishments; also, as will be seen later, the site for Establishments during this phase will probably prove the most suitable ones during the Disintegration Period.

From the evidence of earlier satellite anchorages it seems probable that the Moon's Anchorage will be on the longitude of Ceylon or, possibly, further East and depends on the extent of the westward drift of the Earth's crust. The exact position of the Core Bollard vestiges and from this the Anchorage longitude should be calculable during phase (b).

If my estimate is correct the most suitable area for sites should be some 2,000 miles North or North West of the Anchorage Centre, bearing in mind that practically all land nearer than this will be submerged by the Tide Hill. This area, which includes Southern Thibet and extends westward to the Caucasus is not only high but one of the oldest formations on the Earth.

(d) *Immediate Post-Stationary.*

Suitable positions for subsidiary sites during the Moon's temporary halts will be more difficult to estimate in advance, unless accurate calculations can be made regarding the positions of these halts. There may be halts over large land masses and at multiples of 90° of longitude from the main Anchorage.

Thus Sekiang or West China might be a suitable site area for a halt over Northern Australia; Hawaii or Formosa might be used for a halt over the Pacific; Suitable sites might be found in the Rockies or Southern Andes for a halt over South

America and in Europe or South Africa for a halt over Africa, although for halts over Africa and the Pacific there is nothing at present high enough for a Survival Establishment during the Disintegration Period. There will undoubtedly be another halt over the original Anchorage.

(e) Tide Hill II.

The areas covered by the Tide Hills during this phase will be smaller and their depths very much greater than in Phase (b) owing to the increased pull of the approaching Moon. Also, as a larger proportion of the atmosphere will be drawn to the Tide Hills, there will be glaciation down to the Equator between the Tide Hills.

Survival Establishments destroyed during the previous two phases can be rebuilt and extra ones constructed, endeavour being made to complete all external work before the water and atmosphere are withdrawn into the Girdle Tide. Post Cataclysmic and most Store Establishments (discussed later) must be completed and stored.

Towards the latter end of this phase most of the Earth's population will have to be withdrawn into Island Refuges similar to Tiahuanaco or to places near the shores of the Girdle Tide, which will now be forming.

(f) Girdle Tide.

The calm before the storm. Disintegration Period Survival Establishments must be completed and stored and, in addition, the building and storing of large numbers of 'Arks' must be put in hand, so that the survivors (if any) of the Cataclysm will not be confined only to those selected to man the Survival Establishments.

The completion of these 'Arks' must not be left too late, because the Island Refuges will be submerged by the increasing height of the Girdle Tide and this may occur with little warning, owing to shifts in the Earth's axis.

The saving of life during the Cataclysm is not the only matter of importance. During the Aftermath Period survivors would sink rapidly into a state of barbarism and the human knowledge of many thousands of years would be lost unless they were provided with a supply of tools and the raw materials required for the many aspects of civilized life. Many thousands of "Stores Establishments," containing tools, food, seeds and

other raw material, will have to be built in suitable sites and these must be able to withstand long submersion under ice, mud or water and resistant to earthquakes, eruptions, etc. They need not be near Survival Establishments, but should be built in any place which will not be definitely destroyed or permanently submerged after the Cataclysm.

DISINTEGRATION PERIOD.

(a) *Moon's Break-up.*

This in itself will have little physical effect on the Earth, but will act as the alarm for everyone to go to "Action Stations."

If possible the estimated times of arrival of the various forms of Moon debris should have been calculated and there may be time for minor errors or omissions in the arrangements to be put right.

(b) *Arrival of Ice I.*

The first debris will be from the inner ring of the disintegrated lunar glaciopause and will probably arrive in the form of gigantic hail, which will flatten out most vegetation and all except the strongest structures.

The friction of the atmosphere will melt much of this ice and there will be torrential rain mixed with the hail, which will cause extensive flooding on the outskirts of the Girdle Tide and in all depressed areas of the Island Refuges if any still remain.

If Hoerbiger's calculations are correct there is enough ice in the Moon's glaciopause to submerge the entire Earth to a depth of some 15 to 20 miles and, if this all arrives on the Earth, man will have to transform himself into an aquatic animal or live permanently in Arks. There is, however, a possibility that all land will not be submerged, but this extra water will reduce the number of areas suitable for sites very considerably.

(c) *Arrival of Surface Material.*

The surface crust of the Moon, which forms the bed of the lunar glaciopause, will arrive in the form of mud. Like the glaciopause, there will be sufficient mud to coat the entire Earth with a layer many miles deep, but the majority will fall in the tropics and only a small proportion should fall or be carried subsequently to the Survival Establishment areas.

The possibility of submersion in mud must, however, be borne in mind when selecting the sites.

The fall of mud and debris near the Equator may well build up sufficiently to bring the land above water level in places and thereby enable survivors to remain, at any rate, amphibious.

(d) Arrival of Core.

This will be the most awe inspiring and devastating phase. The enormous masses of glowing material screaming down on and through the Earth's crust will cause almost unimaginable earthquakes and reputions. There will be extensive changes in the Earth's configuration and its diameter will be increased appreciably.

The earthquakes and eruptions will have their greatest intensity in the tropics, but nowhere will be really safe and many of the Survival Establishments will be wholly or partially wrecked unless they are very carefully sited and are lucky.

The atmosphere and water will become highly polluted and thus destroy practically all life outside the Establishments and Arks, which must be designed with this in mind.

The atmosphere will also be affected in other ways. Terrific westerly gales will blow continuously, fanned by the falling debris from the Moon and increased by many enormous fire storms. These gales will whip the waters of the gradually receding Girdle Tide into terrific waves and eddies, which will destroy many of the Arks. The atmosphere will be heated up many degrees by the friction from the falling core material, etc., and render Air Conditioning imperative in Survival Establishments and Arks, but this heat may also have a beneficial effect, as vast quantities of water will be converted into steam, which may escape from the Earth's gravity and thus reduce the final volume of water thereon.

(e) Arrival of Ice II.

The first fragments from the outer ice ring will probably arrive during the core bombardment and will reach the Earth, if at all, in the form of steam. As the core bombardments slacken the atmosphere will be cooled and the raging fires on Earth gradually extinguished, rain will fall continuously and the end will be, as at the beginning, in the form of hail. The rain and hail will greatly purify the air and freshen the

contaminated water, so that existence outside Establishments and Arks will once more become possible.

Meanwhile, as the Moon's substance is being cast upon the Earth, its gravitational effect will be dissipated and the water and air piled up in the Girdle Tide will be released to flow back towards the poles. Mr. Bellamy states that this will be sudden and that tremendous ring waves will sweep backwards and forwards between the Equator and the poles, but I think the release will be more gradual, any super waves being comparatively local and generated by the wind and waning tides; this however will depend on the time taken for Phase (d), as the core forms some 80% of the Moon's mass.

The possibility of ring waves must be borne in mind, therefore, when siting the Survival Establishments, which must be placed behind high mountains and thus partially protected from the force of the waves with their load of abrasive detritus.

So will end the Disintegration Period, but the tribulations of mankind will be by no means over.

AFTERMATH PERIOD.

(a) *Reshaping of the Earth.*

The removal of the Moon will cause the Earth's centre of rotation to be displaced towards its centre, but the masses of the Earth will be very unevenly disposed. The core bollard will have been greatly increased in size during the Stationary Period and this local mass will attract the majority of the Moon's solid material to its vicinity. Also the equatorial bulge will be supportable no longer.

The Earth will try to become more spherical and balance out the uneven masses and this will cause such terrific stresses on the Earth's crust that the earthquakes and eruptions will be as large and continuous as any experienced during the Disintegration Period. These, however, will be much more evenly spread over the Earth's surface, but their greatest intensity is likely to be at the edges of the equatorial bulge, where maximum distortion will take place; this area, unfortunately, is where the majority of Survival Establishments are likely to be situated and some alternative sites will have therefore to be found for the Post-Cataclysmic Period.

The siting of these Post-Cataclysmic Survival Establishments sets a big problem not easy of resolution at such a distant date. The tropics, where most of the Moon's debris will have fallen, will still be in a highly disturbed state and unlikely to be capable of supporting any form of life in the hemisphere containing the Core Bollard. There may be areas of comparative calm in the other hemisphere, brought above the sea by the recession of the Girdle Tide, in which suitable Establishments, "built before the flood," might be rediscovered and brought into use. The only other areas of comparative calm will be at high latitudes clear of the equatorial bulge; but in the South there is very little land now and there will be less then, while in the North much of the land will have been submerged and most of the remainder will be covered by a thick layer of ice. I see little prospect of an Establishment being opened up in these regions in the early stages of the Aftermath Period.

The problem, however, may prove easier at the time, because, even in those latitudes where the intensity of Earth Reformation is theoretically greatest, there may be "Backwaters" left unharmed due to the local formation and stability of the Earth's crust and these areas may be predictable with some exactitude.

(b) Polar Migrations.

The redistribution of the Earth's masses during the re-shaping process, especially the tendency of the mass of Moon's debris to align itself on the Equator, will cause considerable and long drawn out Polar Migrations, which, by their suddenness at first, will cause local volcanic activity and add to the many hazards of Post-Cataclysmic Life.

Later on the principal effect of these migrations will be to retard in some places and hasten in others the melting of the polar ice caps and thereby allow some high latitude Establishments to be brought into use.

(c) Asatellie Era.

The Earth will once more become stable, the poles will cease their wandering, the earthquakes and eruptions will die down, water and atmosphere will be pure again and land will re-emerge from the depths.

Owing to the plane of the new Equator being more nearly parallel to the ecliptic the seasonal changes will be less and there will be few extremes of climate.

Vegetation will spring up and from the vicinity of the remaining Survival Establishments distribution of the human and animal population will once more become possible. Contact between the various communities will be re-established and eventually, it is hoped, civilization will bloom again.

The Quaternary Epoch will be over and a new Asatellian Era will begin.

(To be continued)



Pierre Collignon

An Appreciation

It was with deep regret that we learnt of the sudden death of Dr. Pierre Collignon on the 30th March last. He was one of the leading authorities on Egyptian Place Names in Britain and his numerous articles and letters in *Atlantis* together with his most interesting lecture in May, 1949 did much to bring the idea of diffusion to the notice of the world again. His untimely death leaves a gap which it will be hard to fill.

New Light on the Atlantis Problem

by A. W. P. TULIP

In the last chapter of my booklet "The Evolution of Matter" I deal with the geological implications of the theory, seeking to show that the same forces that produced the stars, with their radiant energy, and the planets of the Solar system would be responsible for the heat generated within the Earth and such contraction of its substance as to lead to the forming of the continents, ocean beds and mountain ranges. I think, however, that a more detailed explanation of the effect on the Earth's crust may be of special interest to readers of "Atlantis".

The Earth is an oblate sphere of such proportions as would be assumed by an equal mass of liquid rotating at the same rate. This can be proved mathematically but is self-evident from the fact that four fifths of the surface is covered with liquid, distributed over polar and equatorial regions alike, the surface of which must conform to the counter-acting gravitational and centrifugal forces. As there is no very marked difference in average depths at varying latitudes it follows that the solid crust of the Earth also conforms to the same shape. If, however, a sudden change were to occur in the rate of rotation of the planet the distribution of the water would alter ; thus a slowing of the rotation would induce the appearance of a belt of dry land at the equator, while a speeding would increase the depth in that region, leaving land at the poles.

When the Earth first solidified it must have assumed proportions relative to its rotational speed and, when sufficiently cooled to permit condensation, have been evenly covered by a layer of water. Geological evidence, particularly that of the radio-active elements in the crustal rock, indicate a period of about 2,000 million years since that occurred, and it is quite obvious that the frictional effect

of the tides during such a period must have considerably slowed the rate of rotation, so that the original form of the Earth must have been more oblate than at the present time. Calculations have actually been made, based on the present influence of the Sun and Moon, which suggest that the rotational speed has been approximately halved since the Earth solidified. As centrifugal force is directly proportional to the square of the speed this would indicate that it was originally four times as effective as at present and, since its present effect is such as to produce an equatorial diameter 26.7 miles greater than the distance between the poles, that the difference at the time the Earth solidified was about 107 miles. Thus, while the interior substance of the Earth has contracted throughout, producing irregularities in the crust, the contraction has been most pronounced in the plane of the equator, so that the equatorial diameter has decreased more than that between the poles; by as much as 80 miles if the tidal calculations are correct.

There is thus proof that the contraction of the interior substance of the Earth is produced by and is proportional to the gravitational pressure, and is so sensitive to it that it has exactly kept pace with the decreasing rotational speed, for otherwise the water would have flowed North & South, leaving a belt of dry land at the equator.

The excessive contraction of the equatorial diameter has markedly affected the surface, for to conform with it has necessitated the crust developing a series of corrugations running at right angles to the equator; hence the majority of the great mountain ranges, both on land and beneath the sea, run about North & South; which fact also disposes of the suggestion sometimes advanced, that the poles at some time may have occupied different positions on the Earth's surface.

As contraction of the inner substance has been shown to be relative to the gravitational pressure, depressions once formed would continue to deepen because of the additional weight of the water which would flow into them; thus the ocean beds continually sink, carrying the water level with them, and producing, by contrast, the phenomenon often referred to as "Continental Uplift".

Space does not permit a recapitulation of the theory advanced in "The Evolution of Matter" of how pressure induces atomic transmutation consequent contraction and the generation of heat within the Earth; so I must content myself by observing that the bending strain on the underside of the crust midway between two subsidences would involve such pressure as to induce limited atomic transmutation within the igneous crustal rock, softening it sufficiently to permit bending and the elevation of the crust as a mountain range and, at points of extreme pressure, actual melting of the rock and volcanic eruption. This theory also advanced reasons for supposing that the original water would carry in solution a large amount of Calcium bi-carbonate, and explained how crustal bending beneath the sea would precipitate from this the limestone deposits, offering this as an explanation of the findings which so surprised the American expedition of 1947 and 1948 : that while the broad low lying plains of the Atlantic are covered by sedimentary deposits less than 100ft. in thickness, the foothills of the ridge consist of broad terraces of sedimentary rock averaging several thousand feet in depth ; as much as 6,000ft. having been measured in places !

Of special interest to students of the Atlantis legend is the other discovery which caused surprise to the members of these expeditions ; that samples from some of these foothills contained sand of such a nature as to prove that they had once been beaches and, therefore, that either the surface of the sea has risen or the ridge has fallen several thousand feet. I suggest that the latter would occur as a consequence of the weight of this great depth of sedimentary rock, since limestone is about three times as heavy as water. The effect of the growing weight of this deposit would be to retard and finally halt the uplift of the crust, at which point the generation of heat and resulting volcanic activity and precipitation would cease. Thereafter while the whole ocean bed would continue to sink, carrying the water level with it, the line of greatest pressure would lie beneath the ridge, causing increasing contraction and a gradual lowering of this mountain range. The effect would be considerably accentuated by the unfolding of the ridge which must ensue, and

as this would entail fracture of the rock along the crest of the ridge the general gradual subsidence would be punctuated by local sudden collapses ; which explains why the ridge is today the centre of seismic disturbances in the Atlantic.

Thus there is evidence that the innumerable volcanic peaks along the Atlantic ridge at some period formed a chain of islands which subsided as a result of the weight of sedimentary rock deposited on the flanks of the ridge. In any particular island the process would begin very gradually, but as the crustal rock commenced to crack a series of minor earthquakes would occur, each accompanied by a small subsidence. Finally the crust at the apex would fracture throughout and the island disappear beneath the sea. If such an island were inhabited by a civilised race their history would record periodic earthquakes and accompanying subsidence and, probably, the total disappearance of other islands ; and so, as has often been suggested by Atlantis students, induce them to attempt to colonise nearby lands.

Book Reviews

by CRITIAS

Avebury, Coldrum and Margate, by W. H. Corkhill, Ramsgate, 1952, 1/3 pf.

In September, 1949, we reviewed in these columns "The Goddess of Margate" dealing with the discovery of an Egyptian Chambered Tomb at Margate. Here the author traces the links between certain of the megalithic structures on the Downs and the Margate Grotto on the one hand, and the cultures of Minoan Crete and Egypt. Here again diffusion is coming into its own. A Culture is the product of the ideas of migrant or trading races fused with that of the local inhabitants. If one goes back into the past it is frequently possible to detect the precise point at which the pattern has been changed by outside influence. The Margate Grotto is a case in point. The booklet is well illustrated and is well worth having.

The Tree of the Mixteca, A Short Study of the Historical Codices of Mexico, C. A. Burland, Chicago, 1951.

The identification of certain of the Mexican Codices as belonging to the Mixtec or Wester peoples of Mexico by the inclusion of the Mixtec Tree from which their ancestors came at the time of the creation, which would appear to be a catastrophe myth dating back to the remote past. A most useful thesis.

Venezuela, Clave Para la Solution del Problema de Punta del Este, Isla de Pinos, R. P. de Acevedo, Habana, 1949.

This 32 page booklet is the fourth part of an investigation into the primitive monuments of Punta del Este. It contains many illustrations of labrythian patterned petroglyphs and other ideograms found inscribed in caverns on the island, which are proof of the existence of a much earlier culture, which I believe to be Atlantean in origin. It is hoped that the investigations of Senor Acevedo will be able to lead us to an approximate solution of this mystery.

The Challenge of Space, by Arthus Louis Joquel 11, Hollywood, \$4.00.

This interesting book of philosophic speculation about the past, the present, and the future, written by a member of the Research Centre Group in America, has within its 220 pages a wealth of information, ranging from the story of *Atlantis*, to speculations as to Lilith, the possible second moon of the Earth which was reported in 1897. The section dealing with the tarot cards is most instructive. The original 14 cards may have represented a coven of thirteen headed by a Queen, together with a King as chief warlock. The 22 Atouts would then have represented the various heads or sections of the order of witchcraft. It is a pity that copies will not be available for the Sterling market.

Rapports entre le Prehistoire Europeenne et l'Histoire Ancienne du Brazil, Marcel P. Homet, Rio, 1951.

Professor Homet has spent many years in investigating the relationship between Brazilian and European prehistory. The brief summary of 18 pages giving the outline of his ideas is of the highest value to all students of *Atlantis*. It is hoped that in the near future it will be possible to translate it for publication in *Atlantis*, but illness and pressure of other work have unfortunately prevented this. However readers may rest assured that this important work is not being neglected.

Were the Phoenicians the first to Discover America, Joseph C. Ayoob. Vol. 1. Aliquippa, Penna., 1951.

The author who would appear to be of Syrian descent, has carefully collated the available evidence, covering Phoenician relics in Pennsylvania, and as far West as Minnesota. Many of the sources which he quotes seem to be quite fresh, and the volume of evidence which is piling up shows that the isolationist tendencies of those who deny the existence of diffusion are in process of being gradually flattened out by the weight of evidence. However this does not convince me that the Phoenicians were the first discoverers of America, I feel that they were but links in a chain of discoveries by all Old World nations having ships which has been going on for over ten thousand years. Again it is a matter for regret that this important brochure is not available over here.





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